



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

*[Handwritten signature]*

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/391,059	09/07/1999	VASUDEVAN PARTHASARATHY	RCA88495	8006

7590 09/08/2003

JOSEPH S. TRIPOLI  
PATENT OPERATIONS  
THOMAS MULTIMEDIA LICENSING INC.  
POST OFFICE BOX 5312  
PRINCETON, NJ 085435312

EXAMINER

CHANG, EDITH M

ART UNIT	PAPER NUMBER
----------	--------------

2634

DATE MAILED: 09/08/2003

*[Handwritten mark]*

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/391,059

Applicant(s)

PARTHASARATHY ET AL.

Examiner

Edith M Chang

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on September 07 1999 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other:

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments with respect to claims 1-10, 12-19 have been considered but are moot in view of the new ground(s) of rejection. The rejections based on what *cited in the claims* are followed.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-16, 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hu et al. (US Patent 5914988).

Regarding **claims 1 & 5**, Hu et al. discloses all subject matter claimed: a decoder and its method (FIGURE 1), it comprises a delay element (70 FIGURE 1) for delaying received encoded symbol data (DATA 1 FIGURE 1, column 3 lines 30-35) to produce delayed data; a re-encoder (50 FIGURE 1) for re-encoding decoded symbol representative data (output 40 FIGURE 1) to produce re-encoded symbol data; and a processor (60 FIGURE 1, FIGURE 11) for feed-forward processing the re-encoded symbol data (output 50 FIGURE 1) to produce difference data representative (output 960 FIGURE 11) of a difference between successive symbols of the re-encoded symbol data (the successive symbols are:  $S_{n-1}$  from 950,  $S_n$  from RE-ENCODED DATA of

Art Unit: 2634

FIGURE 11; the difference is provided by the 960 as stated in column 13 lines 57-65, wherein the 960 does the comparing. Also Hu et al. suggests to compute the distance of the encoded input symbol from different cosets by look-up tables or with subtraction, absolute value and comparison operations in column 7 lines 20-25); and deriving decoded symbol data (output 977 FIGURE 11) using the delayed data (INPUT DATA FROM 70 of 950 FIGURE 11) and the difference data (two inputs of 960: one from UNIT 70, one from RE-ENCODED DATA FIGURE 11).

Regarding **claims 2 & 6**, Hu et al. discloses the feed-forward processing is exclusive of feed-back processing where the delayed data (70-60 FIGURE 1) used in demapper.

Regarding **claims 3 & 7**, Hu et al. discloses the feed-forward processing prevents error induced by feed-back processing (FIGURE 11) where the demapper uses the re-encoded data and delayed received data (from unite 70).

Regarding **claims 4 & 10**, Hu et al. discloses that the decision processor and its steps of comparing candidate values between the delayed data (input from unit 70 of 950 FIGURE 11) and the difference data (re-enocded data and input of 950 from 955 to LOO-UP TABLE 960 FIGURE 11) to determine minimum distance values (column 13 line 57-column 14 line 28), and resolving equality between determined minimum distance values in response to a prior delay and fed back comparison representative output (975-970-950 FIGURE 11, column 14 lines 11-28 ).

Regarding **claim 8**, Hu et al. discloses a decision processor (960 FIGURE 11) for deriving the decoded symbol data by computing an absolute distance using the difference data and the corresponding delayed received encoded symbol of the delayed data (output of 955 & RE-ENCODED DATA, input from unit 70 FIGURE 11, column 13 line 57-column 14 line 10).

Art Unit: 2634

Regarding **claim 13**, Hu et al. disclose all subject matter claimed: a decoder (FIGURE 1) comprising: a delay element (70 FIGURE 1) for delaying received encoded symbol data; a re-encoder (50 FIGURE 1) for re-encoding decoded symbol; and a processor (60 FIGURE 1) including, a feed-forward processor (950-955-965 FIGURE 11) for processing the re-encoded symbol data exclusively of feed-back processing (where the delayed data, input from unit 70 FIGURE 11 is used) in order to produce difference data representative of a difference between successive symbols of the re-encoded symbol data (the successive symbols are:  $S_{n-1}$  from 950,  $S_n$  from RE-ENCODED DATA of FIGURE 11; the difference is provided by the 960 as stated in column 13 lines 57-65, wherein the 960 does the comparing. Also Hu et al. suggests to compute the distance of the encoded input symbol from different cosets by look-up tables or with subtraction, absolute value and comparison operations in column 7 lines 20-25); a decision processor (960 FIGURE 11) for deriving the decoded symbol data by computing an absolute distance using the difference data and the delayed data (output of 955 & re-encoded, input from unit 70 FIGURE 11, column 13 line 57-column 14 line 10).

Regarding **claims 9 & 14**, Hu et al. discloses a decision processor (960 FIGURE 11) for deriving the decoded symbol data by computing an absolute distance using the difference data and the delayed data (output of 955 & re-encoded, input from unit 70 FIGURE 11, column 13 line 57-column 14 line 10); a comparator (960 FIGURE 11 does the comparison) for comparing the absolute distance values to determine a minimum symbol difference value in column 7 lines 20-25 and column 13 lines 64-67, wherein the computing the distance to determine a minimum symbol difference value is done by look-up tables or with subtraction, absolute value and comparison operations that the comparison is well known done by the comparator.

Art Unit: 2634

Regarding **claim 11**, Hu et al. discloses the prior delayed fed back comparison representative output (975-970 FIGURE 11) is only used in the case of equality between candidate minimum distance values (985-970 FIGURE 11, column 14 lines 11-15).

Regarding **claim 12**, Hu et al. discloses the processor derives decoded symbol data in a partial response system (10 FIGURE 1, column 3 lines 9-20).

Regarding **claim 15**, further Hu et al. discloses a comparator (960 FIGURE 11) for comparing candidate values between the delayed data (input from unit 70 FIGURE 11) and the difference data (input from re-encoded data & output 950) to determine minimum distance and resolving equality between determined minimum values (950-960 FIGURE 11) in response to a prior delayed and fed back output (output 970 to adder 950, column 14 lines 11-28).

Regarding claim 16, Hu et al. discloses a different configuration in resolving equality between candidate distances (975-980-970-950, 985-970 FIGURE 11) than is used for deriving the difference data (965-970-950 FIGURE 11).

Regarding **claim 18**, Hu et al. disclose all subject matter claim: a trellis decoding apparatus (FIGURE 1) comprising: a delay element for delaying received encoded symbol data to produce delayed data (70 FIGURE 1); a re-encoder re-encoding decoded symbol representative data (50 FIGURE 1); a processor (60 FIGURE 1) processing the re-encoded data; and deriving decoded symbol data using the delayed data (column 4 lines 24-34), for processing the re-encoded data (950-955 FIGURE 11); a decision processor (960 FIGURE 11) for deriving the decoded symbol data using the delayed data and the difference data (950-955-977 FIGURE 11, column 13 line 57-column 14 line 10).

Art Unit: 2634

Regarding **claim 19**, Hu et al. discloses the processor deriving decoded symbol data using past subset outputs (977-970-955-950-960 FIGURE 11).

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Yeh whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 2634

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4800.

Edith Yeh  
August 25, 2003



**STEPHEN CHUN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**